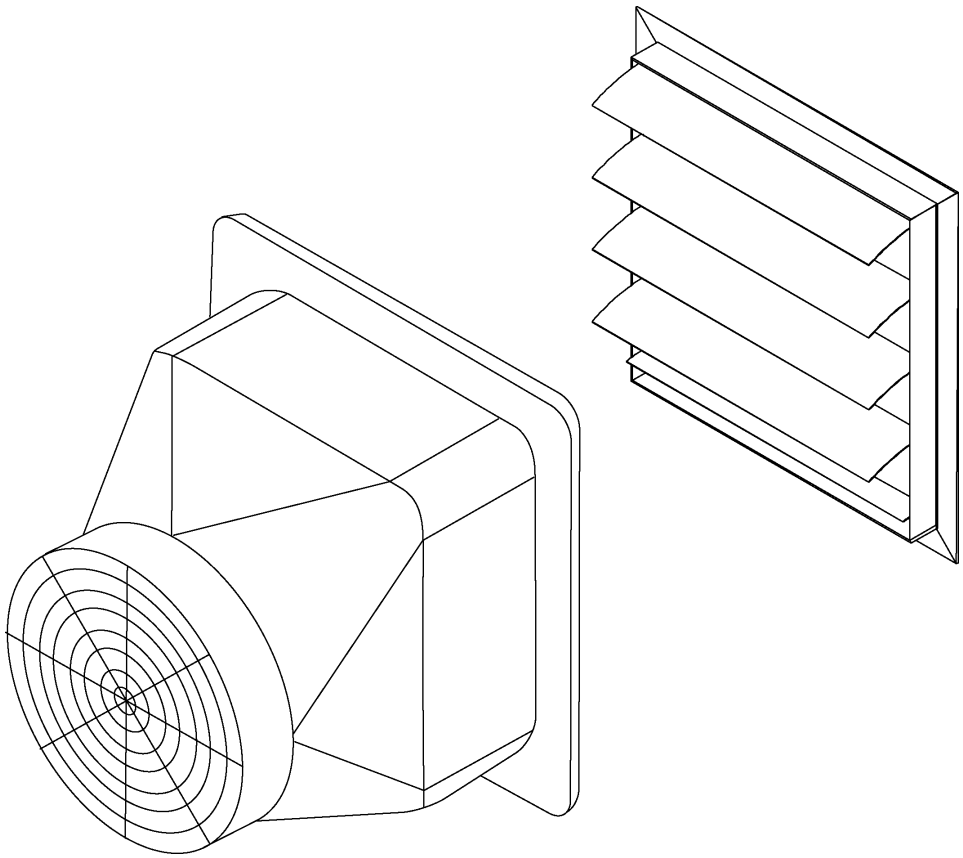

APP Series Knockdown Fan

Installation, Assembly and Operation Manual

PNEG-1016

Date: 04-21-15

PNEG-1016

APP Series Knockdown Fan is manufactured, assembled and packaged with the highest standard of quality assurance. Please inspect and notify the factory in the unlikely event you discover defects in workmanship. We appreciate hearing from you and will correct immediately.

Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Use only genuine AP parts in the installation of fans, use of non-genuine parts or failure to comply with instructions could result in personal injury and/or property damage. This fan is not designed for use in atmospheres where risk of explosion is foreseen. Such environments may include enclosed areas of high dust concentrations, gas vapors and fumes. Use in such an atmosphere is prohibited. If in doubt, contact AP or your dealer.

Retain instructions for future reference.

Fan Models	CFM at 0.00 SP	Weight Lbs./kgs	Cubic Ft./mtrs
APPB-36*	11113	135 Lbs./61.20 kgs	34.5 Ft./0.97 mtrs
APPB-36C*	12290	170 Lbs./77.10 kgs	55.7 Ft./1.58 mtrs
APPB-50*	20856	214 Lbs./97.00 kgs	65 Ft./1.85 mtrs
APPB-50C*	23894	265 Lbs./120.20 kgs	65 Ft./1.85 mtrs

* Add - BLK suffix to end of fan model number for black fans.

For guidance or assistance on any issues relating to the safe use of your APP Fan contact AP.

Our address is:

Automated Production
1004 E. Illinois St.
Assumption, IL. 62510
Phone: 1-217-226-4421

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Cautionary Symbols Definitions

Cautionary symbols appear in this manual and on product decals. The symbols alert the user of potential safety hazards, prohibited activities and mandatory actions. To help you recognize this information, we use the symbols that are defined below.

This symbol indicates an imminently hazardous situation which, if not avoided, **will result in serious injury or death.**

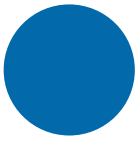
This symbol indicates a potentially hazardous situation which, if not avoided, **may result in serious injury or death.**

This symbol indicates a potentially hazardous situation which, if not avoided, **may result in minor or moderate injury.**

This symbol indicates a potentially hazardous situation which, if not avoided, **may result in property damage**.

This symbol indicates a general hazard.

This symbol indicates a prohibited activity.



This symbol indicates a mandatory action.

Safety Instructions

Our foremost concern is your safety and the safety of others associated with this equipment. We want to keep you as a customer. This manual is to help you understand safe operating procedures and some problems that may be encountered by the operator and other personnel.

As owner and/or operator, it is your responsibility to know what requirements, hazards, and precautions exist, and to inform all personnel associated with the equipment or in the area. Safety precautions may be required from the personnel. Avoid any alterations to the equipment. Such alterations may produce a very dangerous situation where SERIOUS INJURY or DEATH may occur.

This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

Follow Safety Instructions

- Carefully read and follow all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Replacement safety signs are available from the manufacturer.
- Learn how to operate the machine correctly. Do not operate without instruction.
- If you do not understand any part of this manual or need assistance, contact your dealer.

User Manual

This manual contains information and instructions essential to the safe installation and use of the APP Series Knockdown Fans. Read this manual thoroughly **before** attempting any installation or use of the APP Fan. Keep this manual with the APP Fan or in a location where it can be readily accessed. Failure to read this manual and its safety instructions is a misuse of the equipment.

Correct Use of the APP Series Knockdown Fan

The APP Series Knockdown Fan is designed solely for the purpose of ventilating agricultural buildings. Use of the system in any other way is a misuse of the system and may endanger safety and health.

Only genuine AP parts are to be used in the installation and use of the APP Series Knockdown Fan. Use of other non-genuine parts is a misuse of the system and may lead to dangerous situations imperilling the safety and health of you and others.

This machine is not designed for use in atmospheres where there is a risk of explosion. Such environments may include enclosed areas of high dusts concentrations, gas vapors and fumes. Use of the APP Fan in such an environment is prohibited. If in doubt, contact AP or your dealer.

Unpacking

When receiving the unit, inspect carefully for any damage that may have occurred during transit. Shipping damage claim must be filed with carrier.

Electrical Safety

An adequate and safe power supply to the APP Series Knockdown Fan unit is essential for safety. A competent and qualified electrician must undertake all electrical wiring. All wiring is to be installed according to the National Standards and Regulations relevant to your Country and Region.

Safety Guards

The APP Series Knockdown Fan contains many moving and electrical parts, which will cause serious injury or death if touched. Guards are placed on the machine for your protection. Operating the machine at any time with guards removed or incorrectly fitted is a serious misuse of the machine and endangers safety.

Safety in Handling the APP Series Knockdown Fan

Manual handling of the fans can be a cause of serious injury. Wherever possible, use mechanical lifting equipment when lifting or moving fans during installation. Where manual handling is required, seek assistance from other people.

To prevent injury, use suitable hand protection.

Safety in Maintenance

While the APP Series Knockdown Fan is designed to keep maintenance to a minimum, some repairs will be necessary in the course of the life of the machine. Do not attempt any repairs on the machine unless you are competent to do so. Remember that the APP Series Knockdown Fan may in cases operate under automatic control and start without warning. Never attempt any work on the APP Series Knockdown Fan without first isolating the machine from the main power and locking the isolator so that only you can turn the power back ON.

Follow all the guidelines given in the maintenance section *on Page 11* of this manual.

Before restarting the APP Series Knockdown Fan, ensure that all electrical enclosures are locked closed and all guards and other safety measures are correctly fitted.

If in any doubt, contact your dealer or AP for assistance.

General Safety Information

This unit should be assembled and installed by a qualified technician.

Follow all local electrical and safety codes, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

Motor must be securely and adequately grounded. This can be accomplished by wiring with a grounded, metal-clad raceway system by using a separate ground wire connected to the motor’s ground lug or other suitable means.

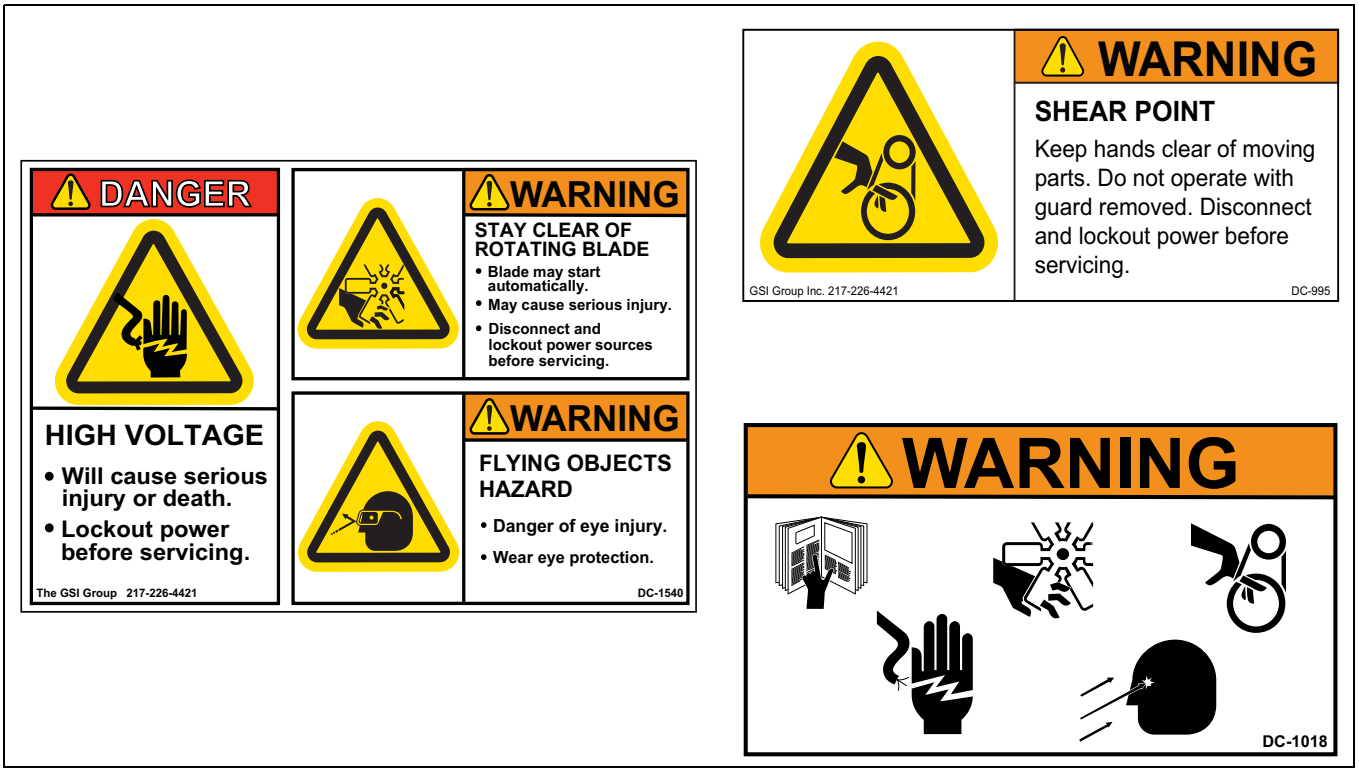
Protect power cable from coming in contact with sharp objects.

Do not kink power cable and never allow cable to come in contact with oil, grease, hot surfaces, or chemicals.

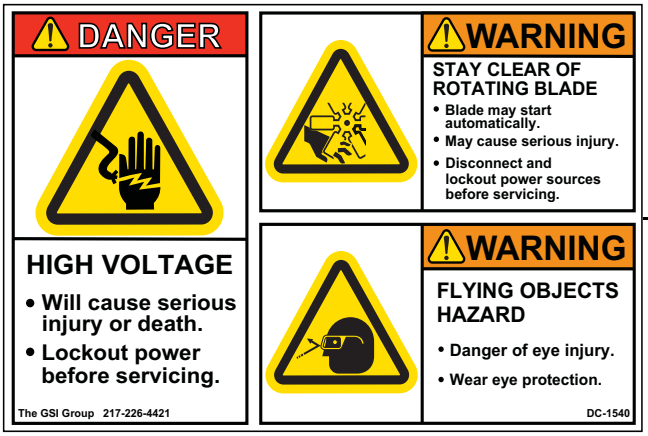
Make certain that the power source conforms to requirements of the equipment.

Safety Signs and Warnings

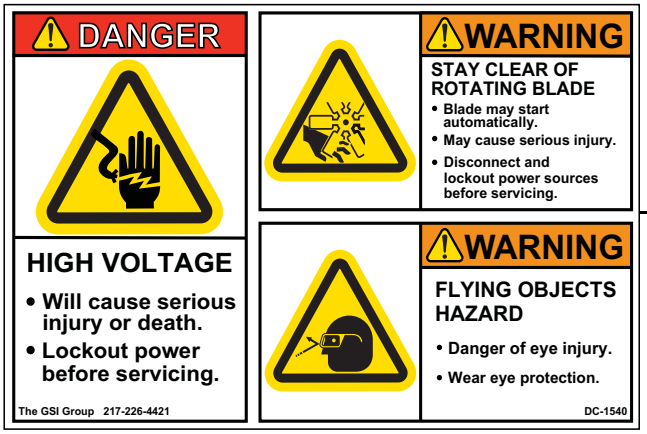
The following pages show you exactly where the safety signs and warnings (decals) should be placed on your APP Series Knockdown Fan. If a decal is missing, damaged or unreadable, please contact your dealer or AP for a free replacement.

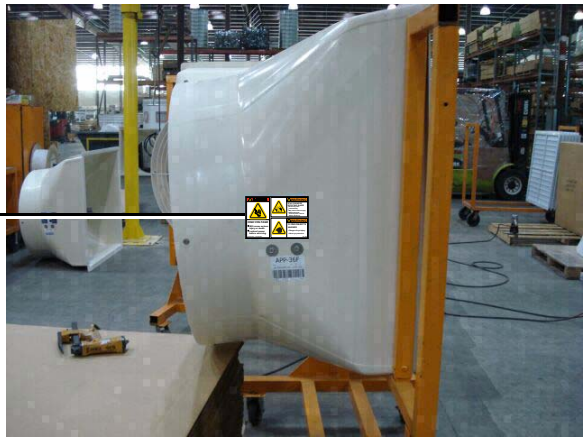


Inside housing

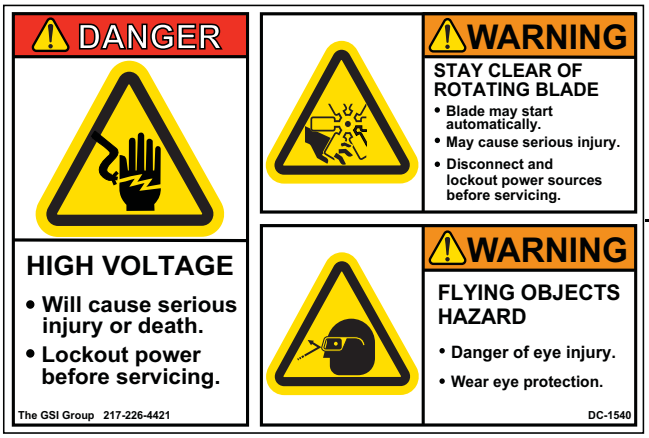


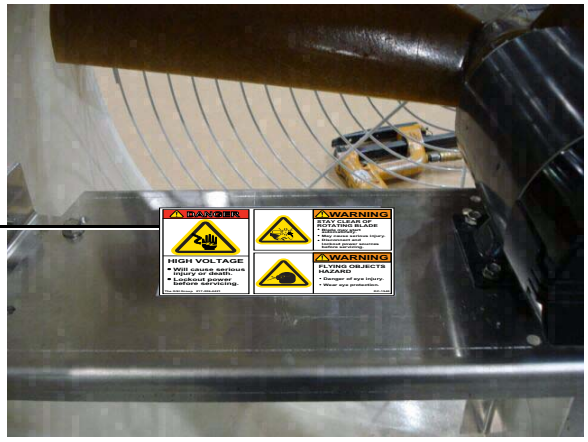
Left side





Right side





Motor mount plate

Fans should be installed in an exterior wall located where there will be no obstructions to the flow of air into or out of the fan.

Once a location has been determined, an opening should be made in the wall and framed to provide enough clearance around the fan housing. (See rough opening chart *on Page 10.*)

Framing must be able to support the weight of the fan assembly.

Manual handling of the fans may result in serious injury. Where appropriate, use mechanical methods of lifting during installation. Where manual handling is required, ensure you have adequate assistance.

Position fan assembly in the framed opening. Rigidly mount the housing side flanges to the framework using mounting screws.

Remove electrical cover and connect power leads to motor terminals, using approved wiring method. It is recommended to use the watertight connector included with the motor, if it is possible in the application. (Motor terminal connection data is provided on motor nameplate and in this manual.) Use adequate size wire for all branch and feeder runs. When speed control is used, follow the installation procedures recommended by the speed control manufacturer.

Re-install electrical cover.

Unit is now ready for operation.

Fan Model	Width (in.)	Inside Height (in.)	Outside Height (in.)
		B	A
APPB-36*	44-1/2	44-1/2	43-1/2
APPB-50*	56	56	55

* Add - BLK suffix to end of fan model for black fans.

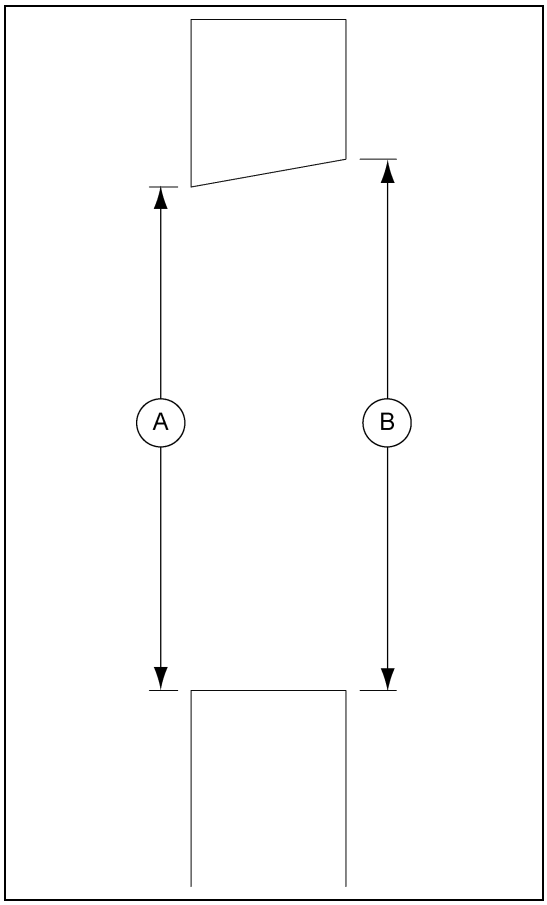


Figure 4A

Ref #	Description
A	Outside House Height
B	Inside House Height

Units may be operated using a switch, thermostat, timer or controller.

Follow wiring and operation instructions furnished with the control system selected.

When using speed controllers, follow the operation procedures recommended by the controller manufacturer.

1. Set thermostat setting to a desired temperature. Fan will operate only when ambient temperature is above the thermostat set temperature.
2. Some controllers have idle speed controls. Set idle speed such that the blade RPM is within the RPM range listed in the performance table.

Cleaning

Clean the blade and shutter at regular intervals. Dirt and debris can cause the fan blade to become unbalanced, resulting in excessive vibration and poor performance.

Lubrication

Motor is pre-lubricated at the factory and will not require any further lubrication.

Electrical Wiring

All wiring should be installed in accordance with National, State and Local Electrical Codes. Fans used to ventilate livestock buildings or other rooms where continuous air movement is essential should be connected to individual electrical circuits, with a minimum of two (2) circuits per room. We strongly recommend the installation of supplementary natural ventilation as well as a back-up thermostat and an alarm system on at least one cooling stage.

For electrical connection requirements, refer to *Figure 6A* on motor nameplate and to information enclosed with the “AVS” fan control to be used.

Figure 6A

Belt Drive Wirings for Single Phase Motors

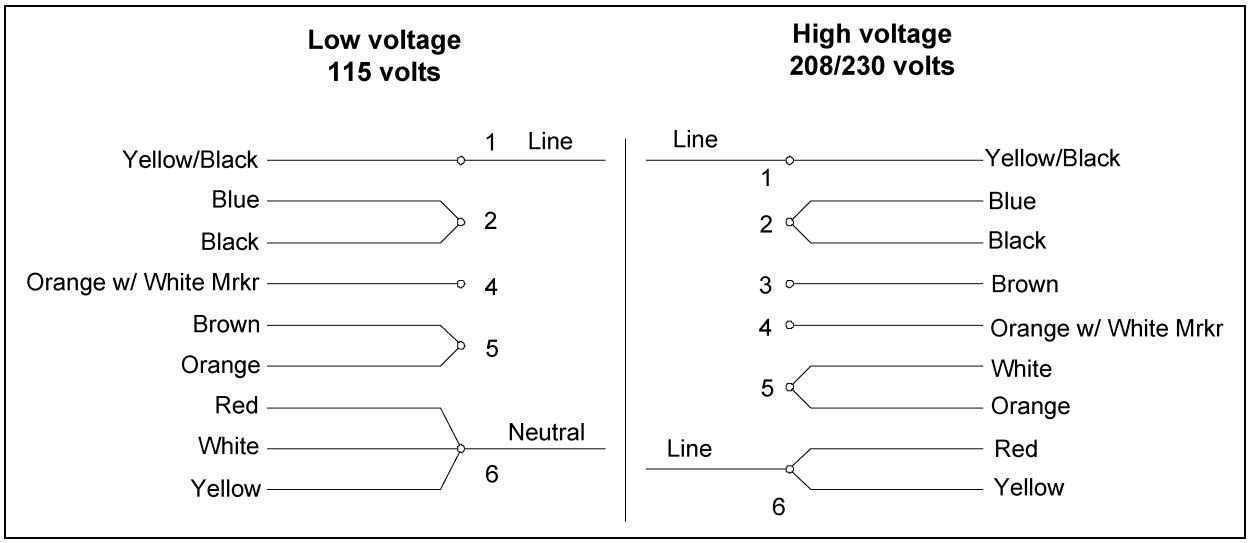


Figure 6B

Motor overload protection should be provided for each fan. A circuit breaker switch or slow blow motor type fuses must be used.

NOTE: *A safety cut-off switch should be located adjacent to each fan, such as "AP" #'s:*
E100-A1063 - 2-1/2 Amp
E100-A1064 - 5.0 Amp
E100-A1065 - 8.0 Amp
E100-A1066 - 15.0 Amp

Figure 6C

Back-up thermostats such as the TH-1, should always be used in conjunction with the control system. These should be placed on a separate circuit to give the animals ventilation in the event that the controller fails.

7. Dimension Chart

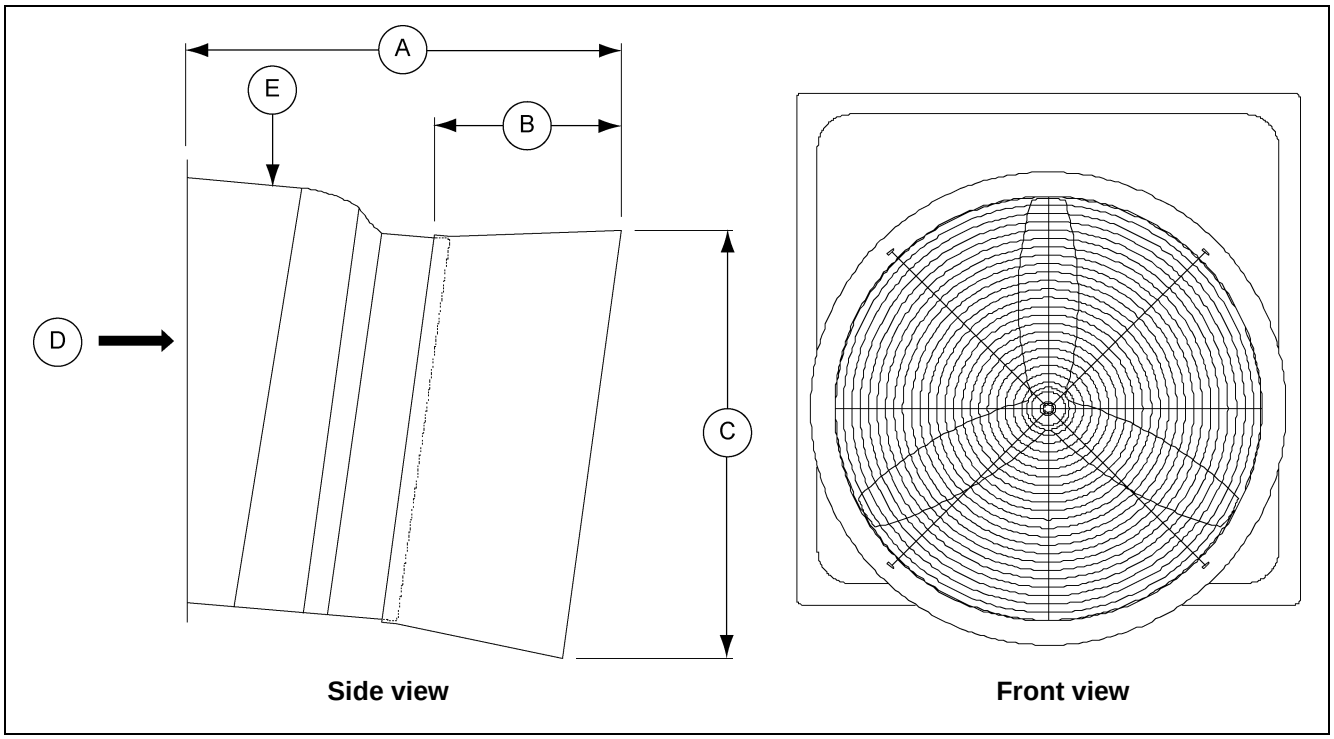


Figure 7A

Fan Model	"A"	"B"	"C"
APP-36F/APPB-36F*	30-1/4"	N/A	37-7/8"
APP-36FC/APPB-36FC*	54-1/2"	27"	44-3/8"
APPB-50*	34-1/4"	N/A	50-3/8"
APPB-50C*	55"	24"	56-3/8"

* Add - BLK suffix to end of fan model for black fans.

Ref #	Description
D	Airflow
E	Slope

Assembling the Motor Mount Leg and Bearing Plate

1. Align the motor mount leg (A) to the center of the bearing plate (B). *(See Figure 8A.)*
2. Fasten them together using bolts (C) and nuts (D) and torque to 120 ft.-lbs.
3. Install the grommet (E) into the bearing plate on the side where the power will be installed. *(See Figure 8B.)*
4. Loosely install the belt tensioner (F) to the flange of the bearing plate on the side where the power will be installed. *(See Figure 8C on Page 16.)*

Figure 8A

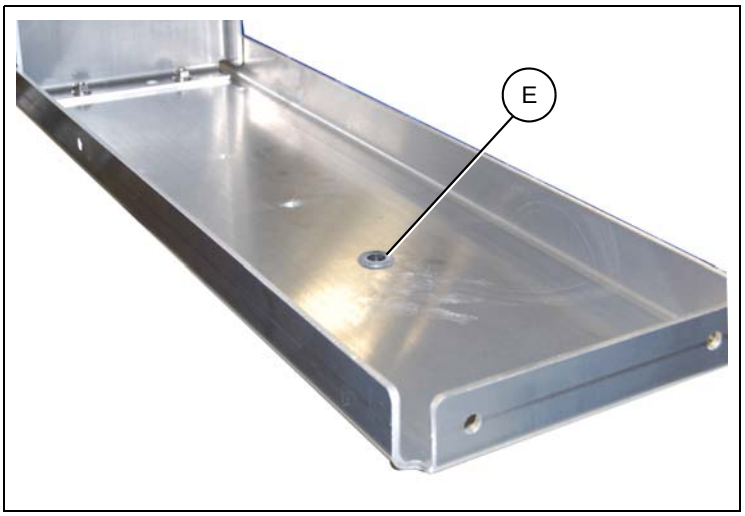
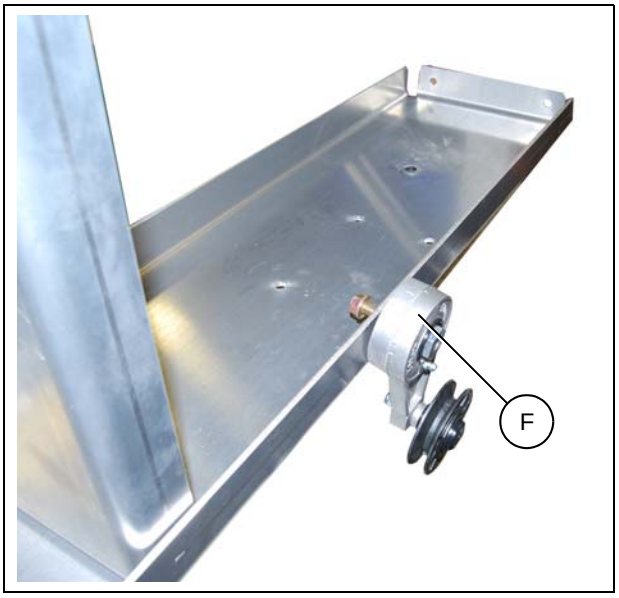


Figure 8B

Assembling the Motor Mount Leg and Bearing Plate (Continued)



Ref #	Description
A	Motor Mount Leg
B	Bearing Plate
C	Bolt
D	Nut
E	Grommet
F	Belt Tensioner

Figure 8C

Installing the Motor and Bearing Support Assembly into the Fan Housing

1. Align the motor mount leg (A) with the bottom holes in the fan housing.
2. Align the bearing plate (B) with the holes in the sides of the fan housing. *(See Figure 8D.)*
3. Fasten the supports (A and B) to the fan housing (C) using bolts (D), washers (E) and nuts (F). *(See Figure 8E and Figure 8F on Page 17.)*

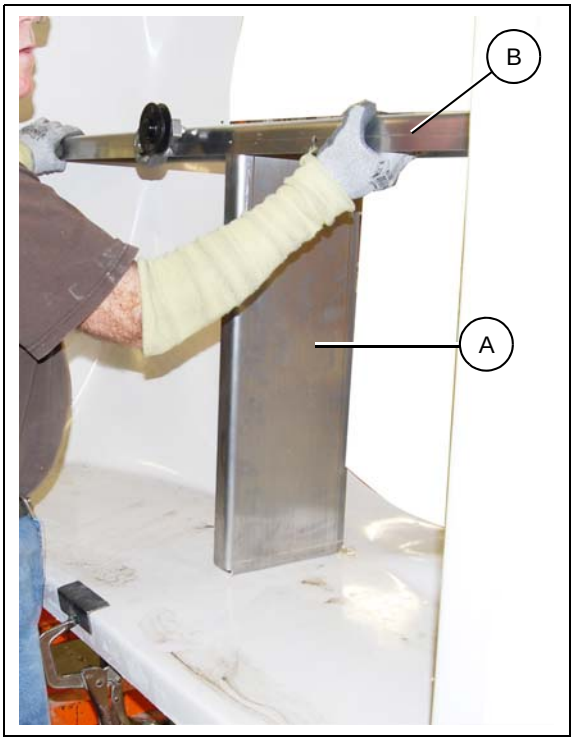


Figure 8D

Installing the Motor and Bearing Support Assembly into the Fan Housing (Continued)

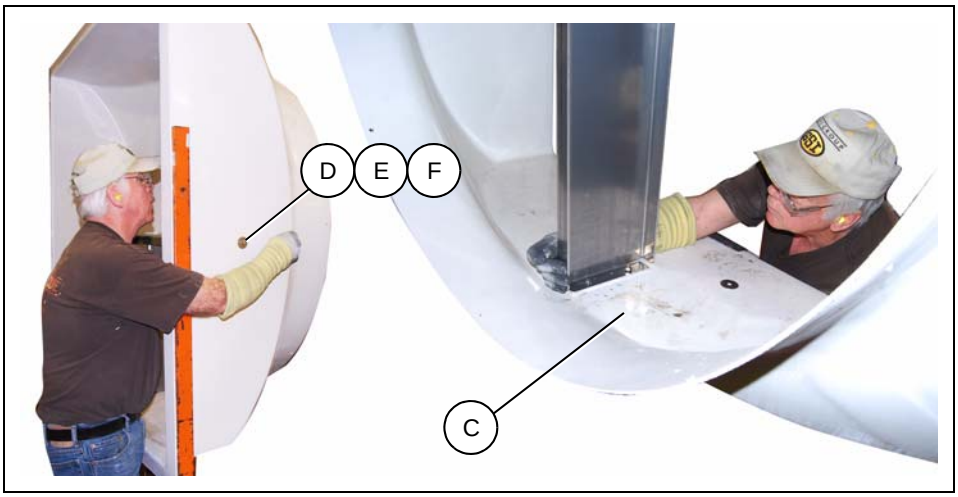


Figure 8E

Figure 8F

Ref #	Description
A	Motor Mount Leg
B	Bearing Plate
C	Fan Housing
D	Bolt
E	Washer
F	Nut

Assembling the Motor

1. Use generous amount of Loctite 242® (A) around the inside of the pulley bore (B). *(See Figure 8G and Figure 8H.)*

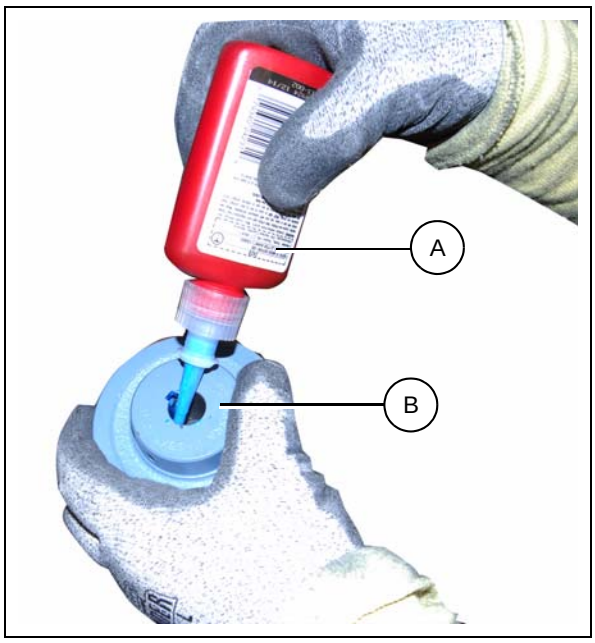


Figure 8G

Figure 8H

2. Place the key (C) into the keyway on the motor shaft (D). *(See Figure 8I.)*

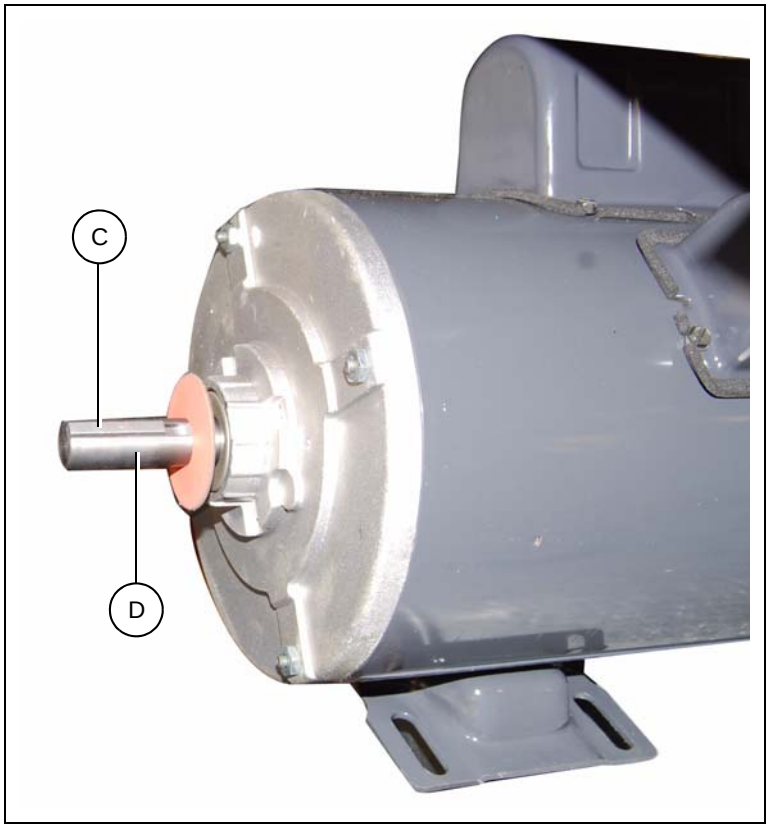


Figure 8I

Assembling the Motor (Continued)

3. Insert the pulley (B) onto the motor shaft (D) and key (C).
4. Tap the pulley onto the shaft until it is flush with the end of the motor shaft.
5. Tighten both set screws (E) on the pulley to 120 in.-lbs. of torque. *(See Figure 8J.)*

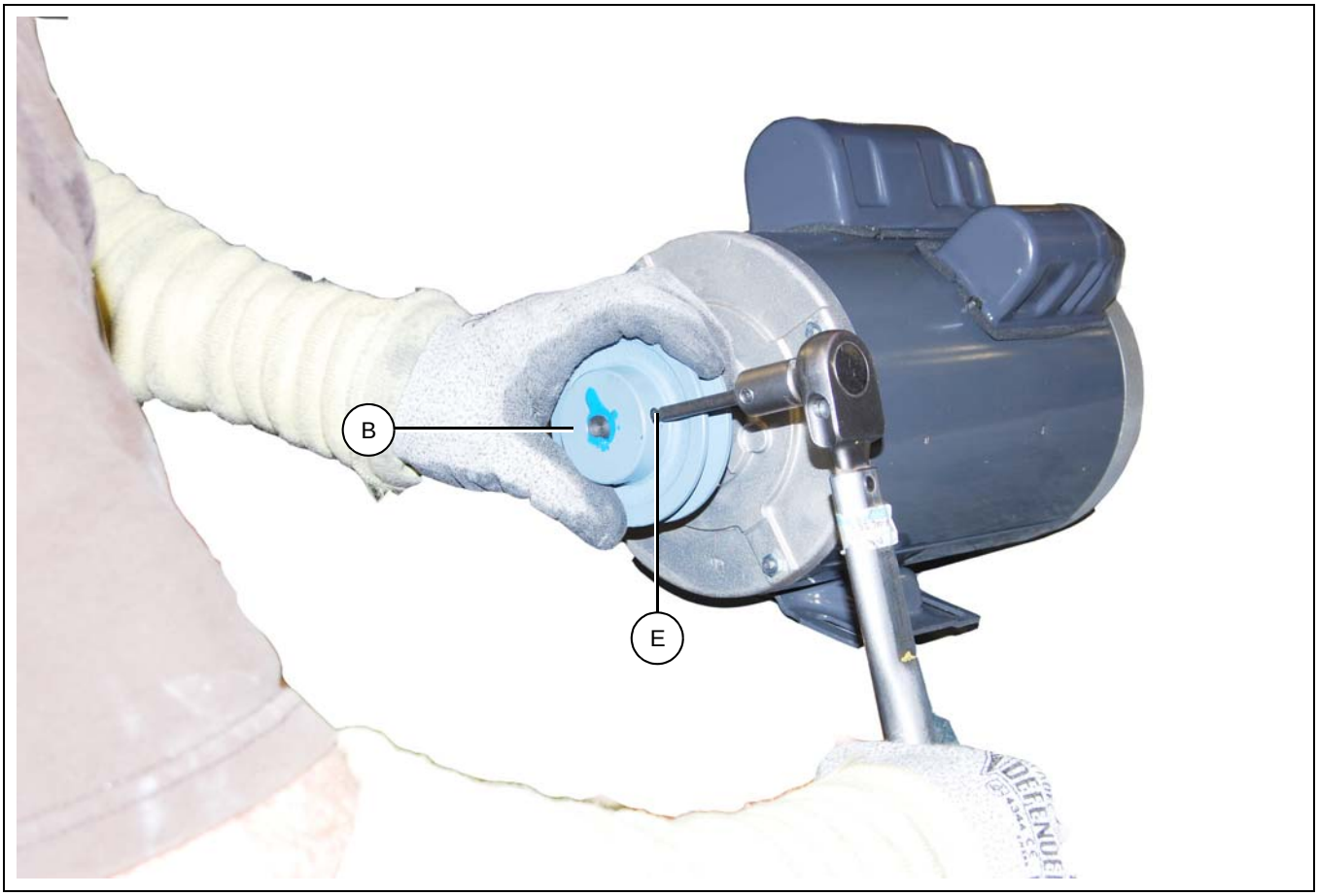


Figure 8J

Ref #	Description
A	Loctite 242®
B	Pulley Bore
C	Key
D	Motor Shaft
E	Set Screw

6. Wipe off excess Loctite.

Installing the Motor

1. Align the motor (A) with the four (4) holes in the bearing plate (B) located next to the tensioner arm (C). *(See Figure 8K.)*
2. Fasten the motor (A) to the bearing plate (B) using bolts (D) and nuts (E). *(See Figure 8L.)*

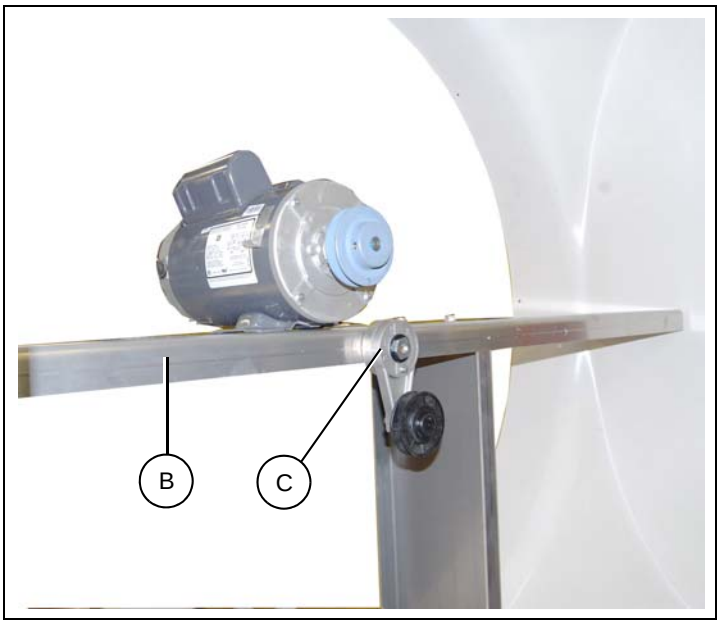


Figure 8K

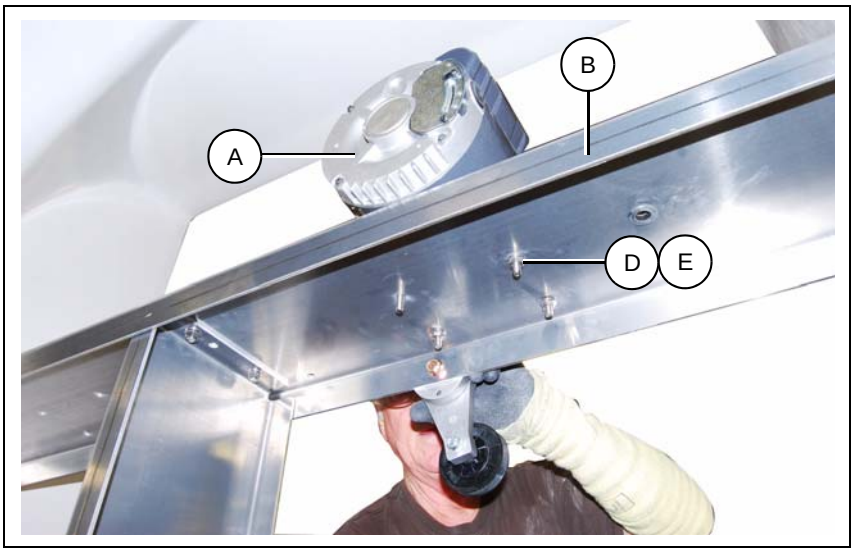


Figure 8L

Ref #	Description
A	Motor
B	Bearing Plate
C	Tensioner Arm
D	Bolt
E	Nut

Aligning the Tensioner Arm

1. Align the belt tensioner along the center at a 260° angle.

   NOTE: *The notched marks (A, B and C) in Figure 8M are where the arm should initially be set. After the belt is installed, the notch marks (A, B and C) on the tension arm should look like Figure 8N.*

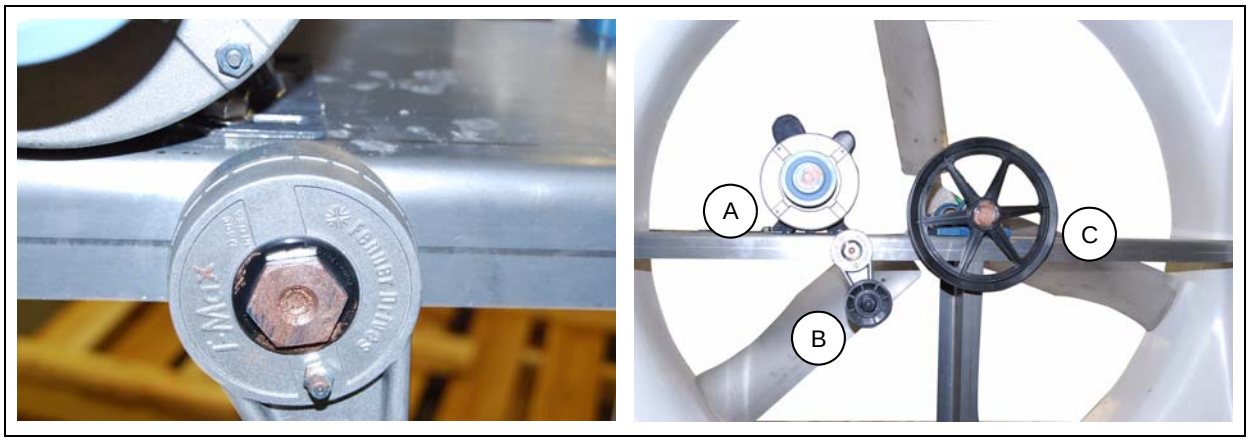


Figure 8M

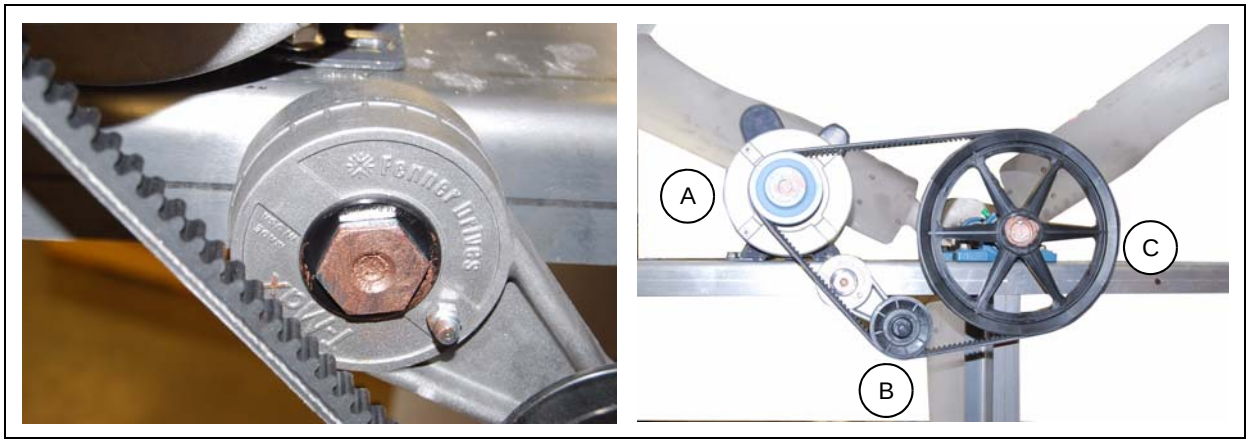


Figure 8N

Installing the Bearings

1. Slide the bearings (A and B) onto the shaft (C).
2. Align the bearings (A and B) with the holes located in the center of the bearing plate (D) and fasten using bolts (E) and nuts (F). *(See Figure 8O on Page 22.)*
3. Position the end of the shaft (C) 4-1/4" from the edge of the bearing plate (D) on the exhaust side of the fan housing. *(See Figure 8P on Page 22.)*
4. Torque the set screws on the bearings to 120 ft.-lbs.

Installing the Bearings (Continued)

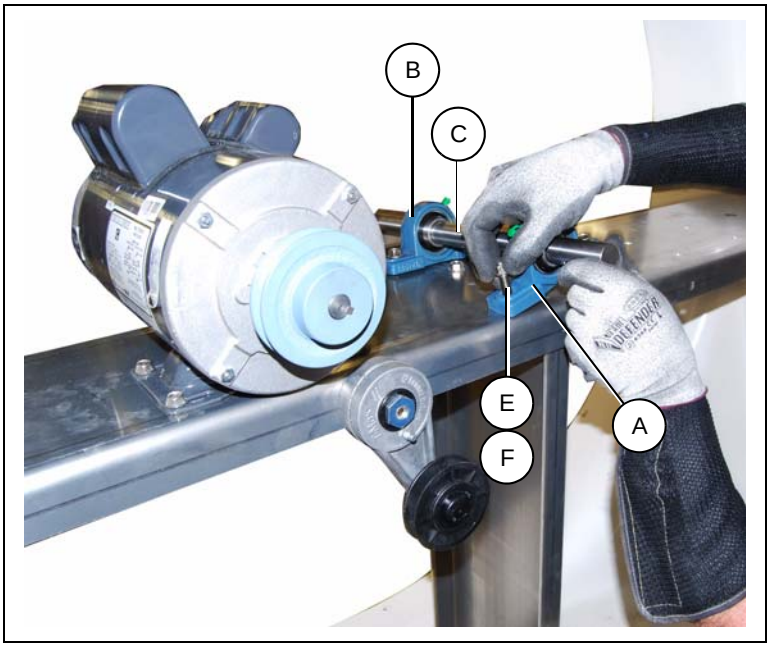


Figure 8O

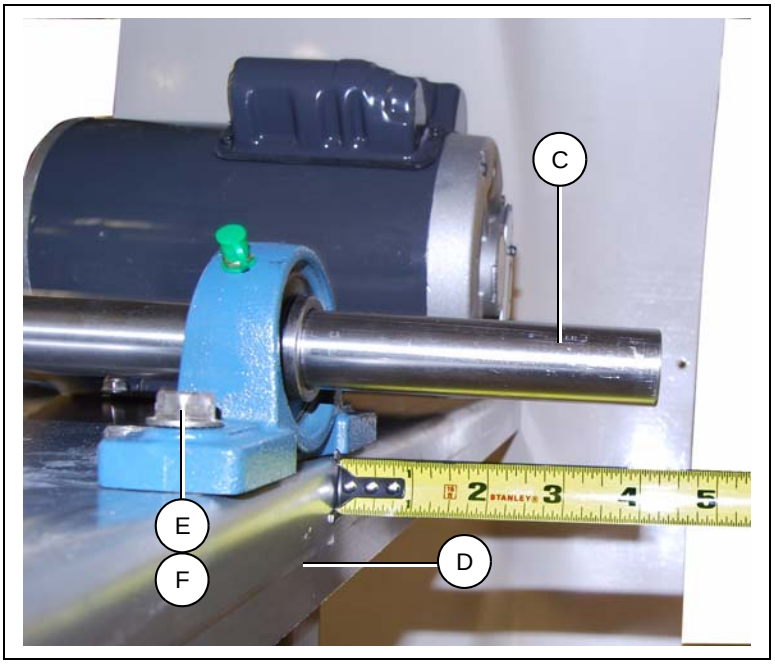


Figure 8P

Ref #	Description
A	Bearing
B	Bearing
C	Shaft
D	Bearing Plate
E	Bolt
F	Nut

Installing the Driven Pulley onto the Shaft

1. Place Loctite 242® around the inside of the driven pulley bore.
2. Place the key into the keyway on the shaft.
3. Tap the pulley (A) onto the shaft and key. *(See Figure 8Q.)*

   NOTE: *End of shaft should align flush with the metal face of the pulley bore (B).* *(See Figure 8R.)*
4. Make sure all pulleys are aligned.
5. Tighten both set screws on the driven pulley to 120 in.-lbs. of torque.
6. Wipe off the excess Loctite.

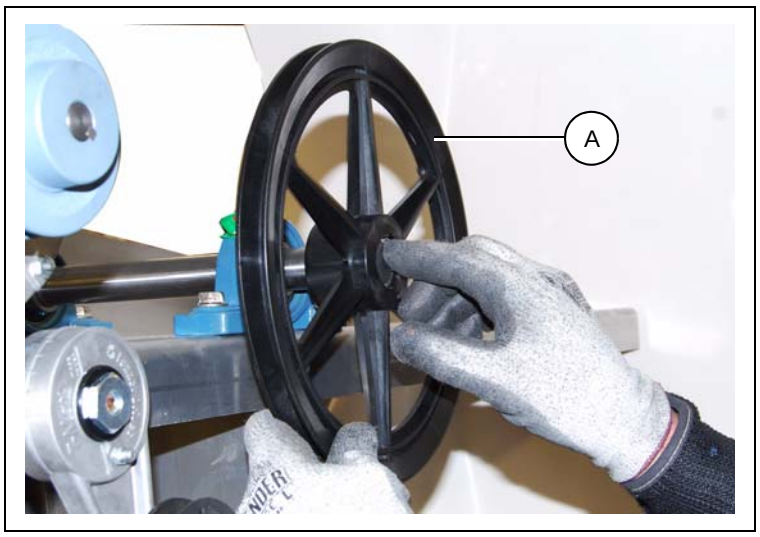


Figure 8Q

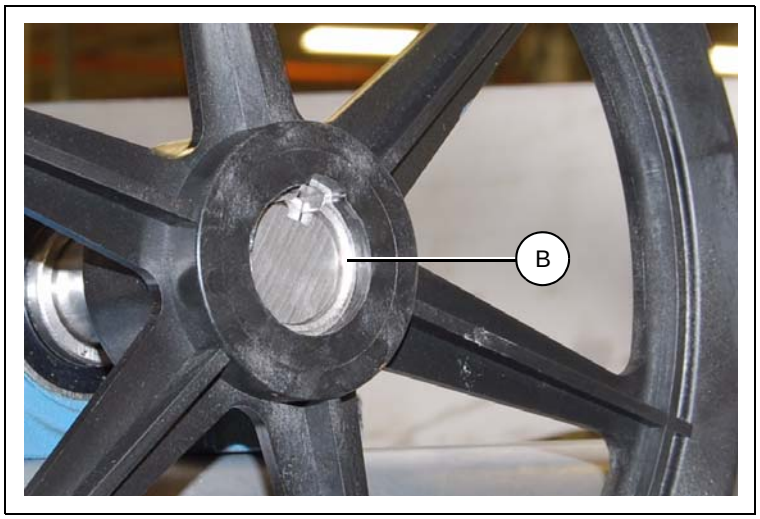


Figure 8R

Ref #	Description
A	Pulley
B	Pulley Bore

Installing the Propellar

1. Place the key into the keyway on the shaft.
2. Tap the pulley onto the shaft and key.

   NOTE: *End of shaft should align flush (A) with the metal face of the propellar bore.* *(See Figure 8S.)*
3. Tighten the set screws (B) to 120 ft.-lbs. of torque. *(See Figure 8T.)*
4. Spin the propellar to ensure it does not interfere with the fan housing.
5. Add anti-seize along the fan blade shaft.

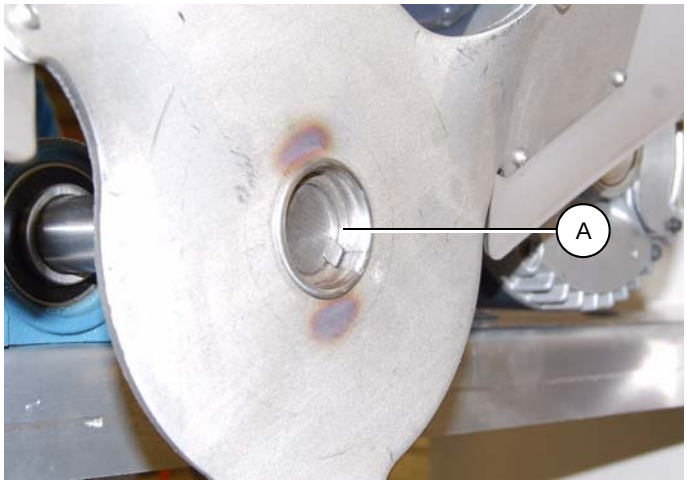


Figure 8S

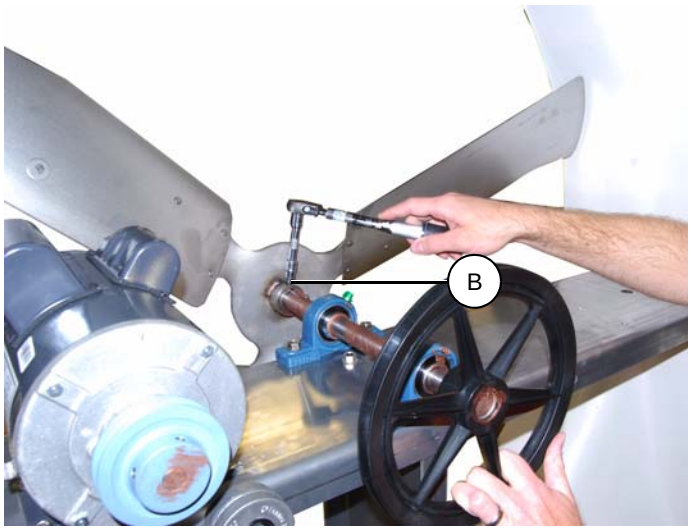


Figure 8T

Ref #	Description
A	Flush
B	Set Screw

Installing the Belt

1. Wrap the belt (B) around the drive pulley (A).
2. Keep tension on the belt (B) and continue to wrap the belt around tensioner arm (C) and rotate the belt onto the driven pulley (D). *(See Figure 8U.)*

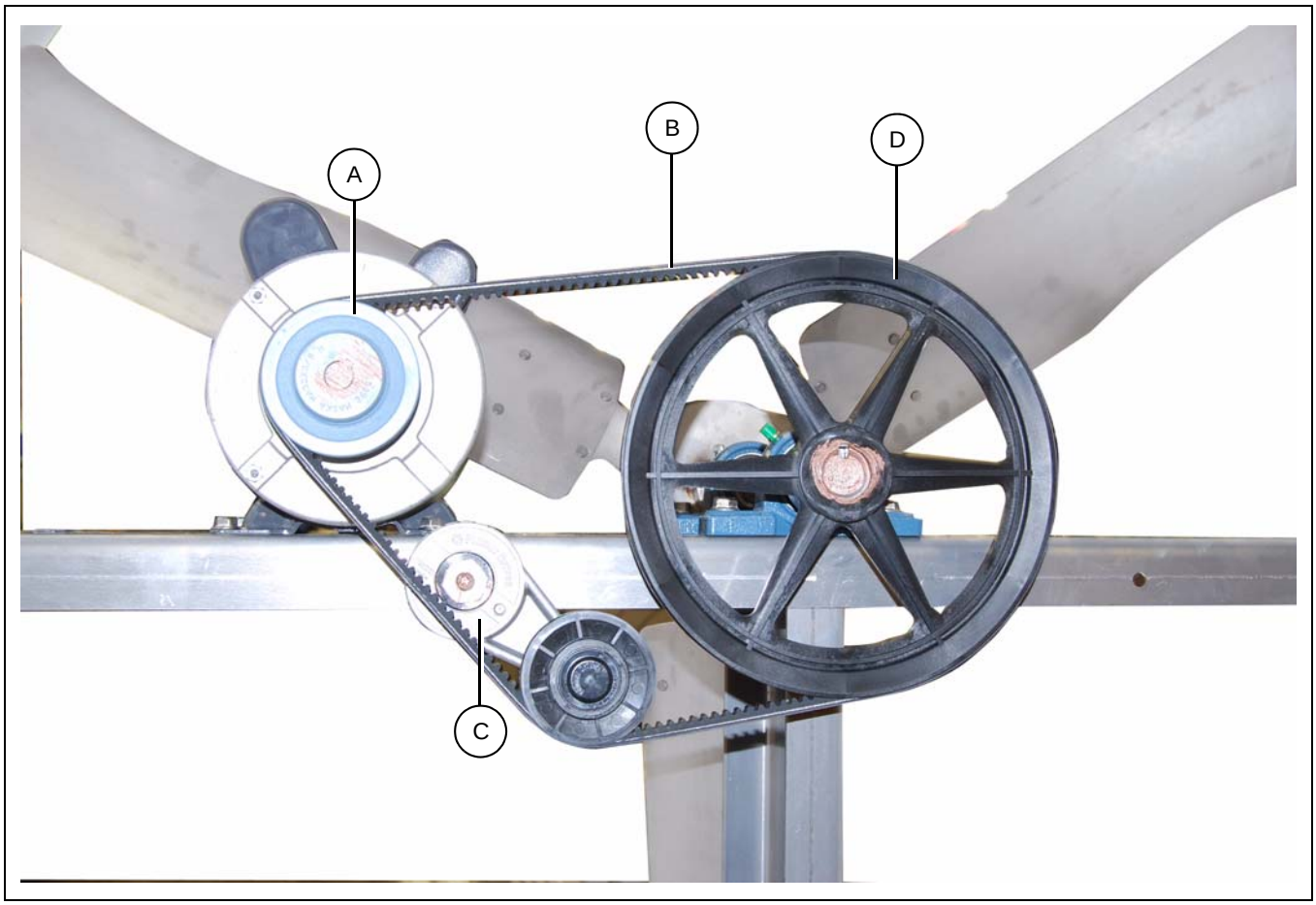


Figure 8U

Ref #	Description
A	Drive Pulley
B	Belt
C	Tensioner Arm
D	Driven Pulley

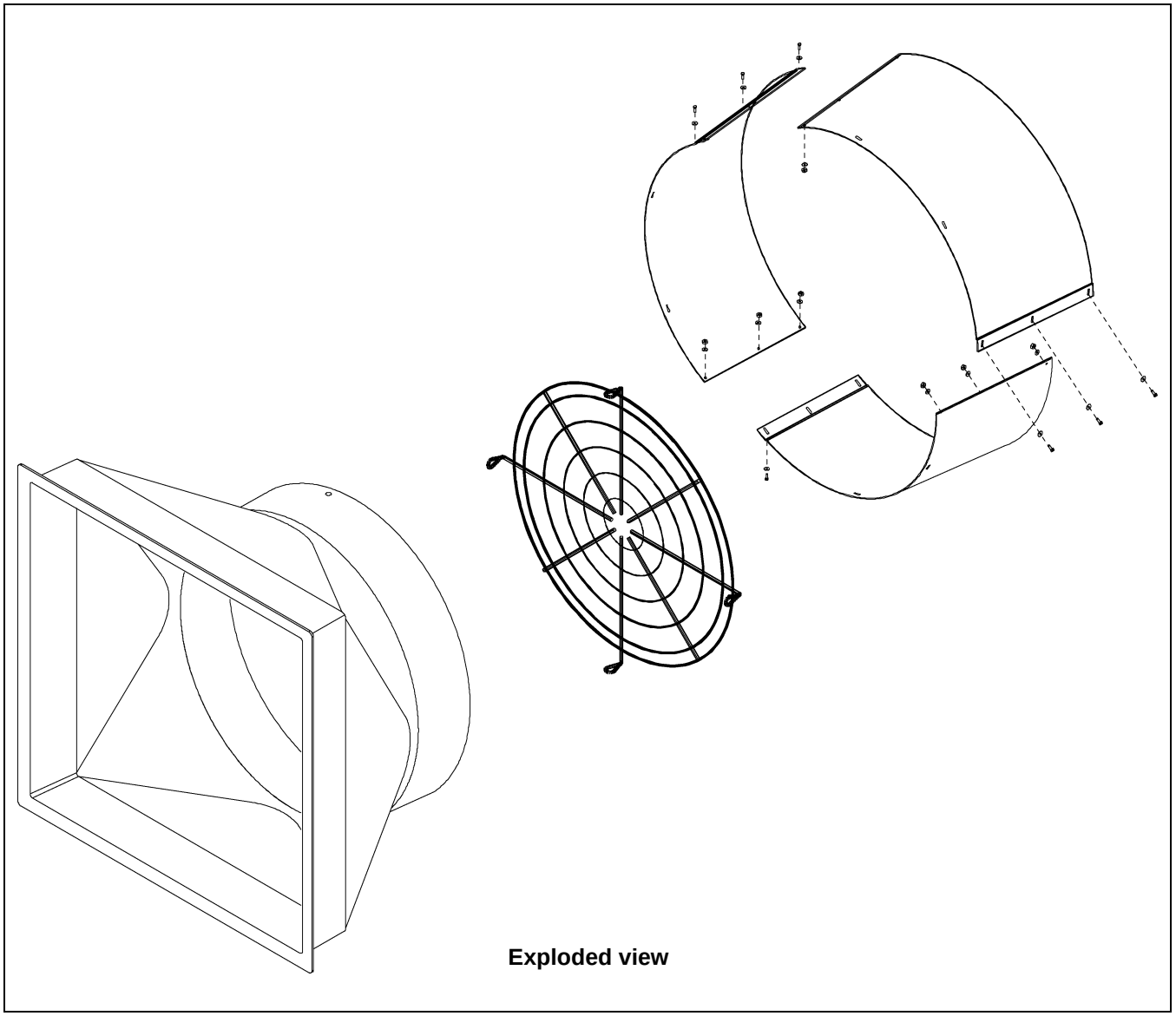


Figure 9A

NOTE: *Fan must be installed in the wall before proceeding with discharge cone installation.*

Remove packaging from cone and guard sections.

Find hardware package #10-0068 consisting of the following parts:

Part #	Description	Qty
S-8724	Fender Washer 5/16" x 1-1/2" x 1/16" SS	38
S-8452	Flange Nut 5/16"-18 SS Waxed (Must be Waxed)	20
S-7447	Flange Bolt 5/16"-18 x 1" SS (Full Thread)	7
S-8168	Flange Bolt 5/16"-18 x 1-1/2" SS	13

Assembling a Segmented Discharge Cone

1. Partially assemble the cone on the ground by using only the outermost two (2) holes per overlap (six (6) total).
2. Use the 1" bolts, fender washers and flange nuts, leaving the bolts loose. *(See Figure 9B.)*

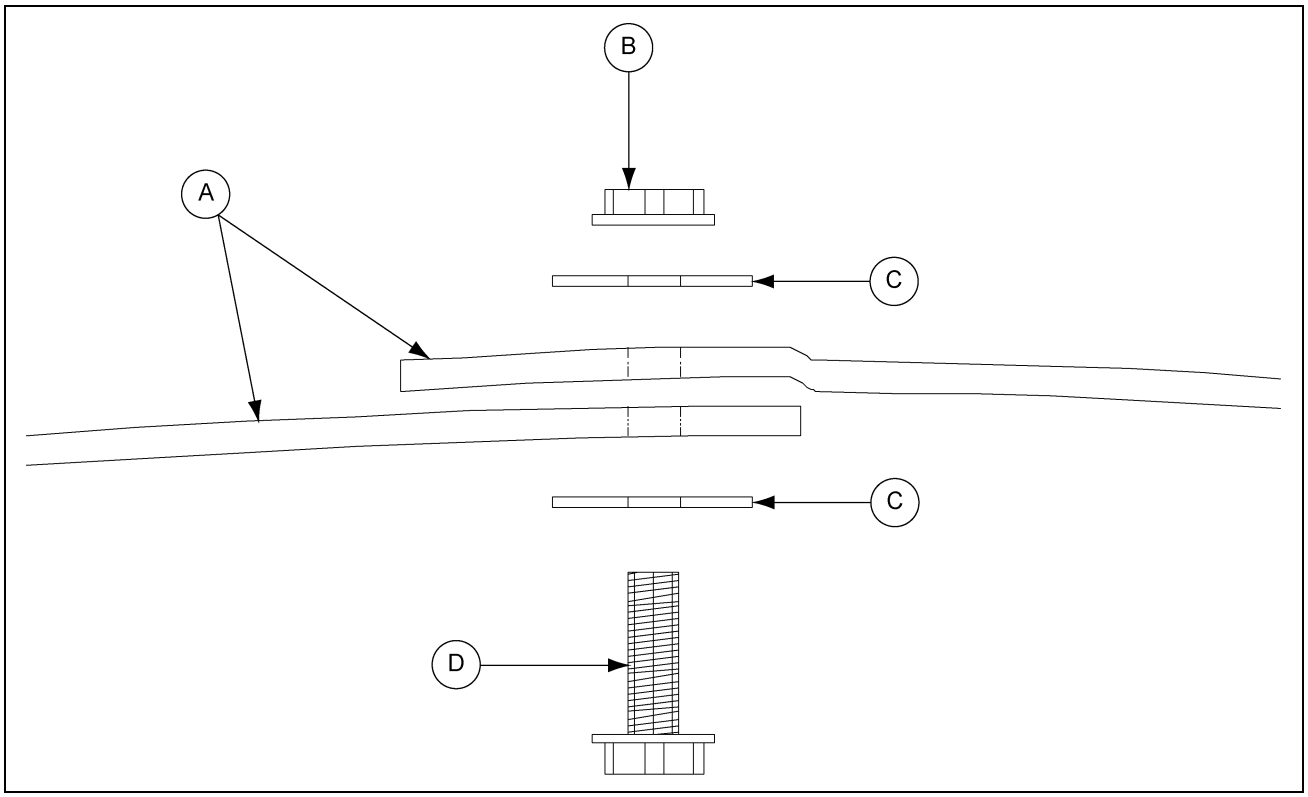


Figure 9B

Ref #	Part #	Description
A		Cone Panels
B	S-8452	Flange Nut 5/16"-18 SS Waxed (Must be Waxed)
C	S-8724	Fender Washer 5/16" x 1-1/2" x 1/16" SS (2)
D		** 5/16"-18 x 1" Flange Bolt

** 1" Bolt used only for two (2) outermost cone assembly holes.
** 1-1/2" Bolt used to mount cone to fan and to mount guard.

Mounting the Cone to the Fan Housing

1. Place the cone on the fan leaving a 2" overlap.
2. Mark the nine (9) holes around the fan orifice.
3. Remove the cone and drill 7/16" holes where marked.
4. Mount the cone using the 1-1/2" bolts, fender washers and flange nuts. Tighten all hardware including cone panels. *(See Figure 9C.)*

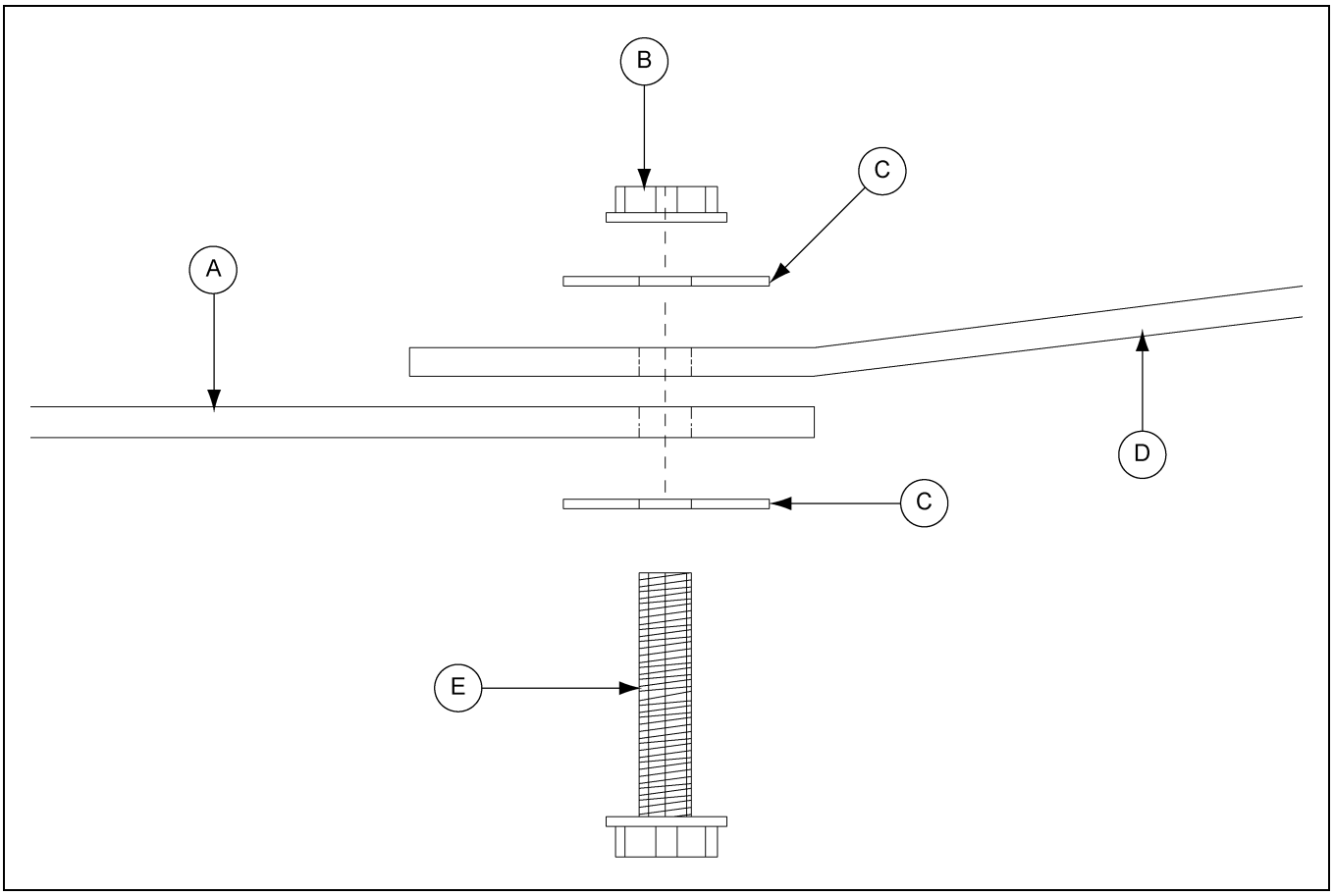


Figure 9C

Ref #	Part #	Description
A		Fan Outlet
B	S-8452	Flange Nut 5/16"-18 SS Waxed (Must be Waxed)
C	S-8724	Fender Washer 5/16" x 1-1/2" x 1/16" SS (2)
D		Discharge Cone
E	S-8168	** Flange Bolt 5/16"-18 x 1-1/2" SS

** 1-1/2" Bolt also used to mount guard.

Guard Detail for 50" Fan

See guard detail in *Figure 9D* for appropriate eyelets to be used with fiberglass fans (F).

1. Push guard into the fan until eyelets contact the center of each cone panel.
2. Mark and drill three (3) 7/16" holes in the center of each cone panel.
3. Use 1-1/2" bolts, fender washers and flange nuts to mount the guard.
4. Tighten hardware evenly.

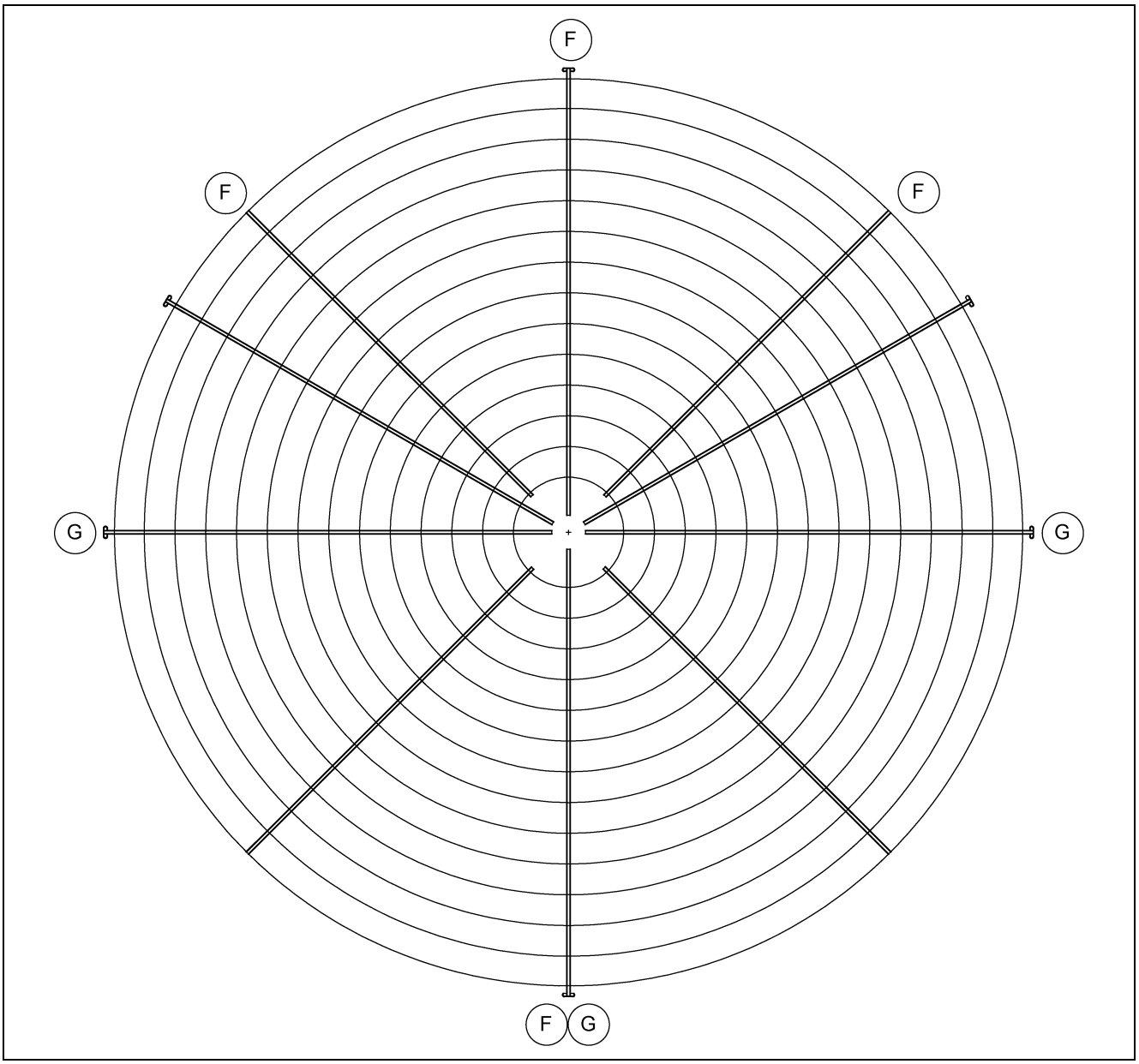
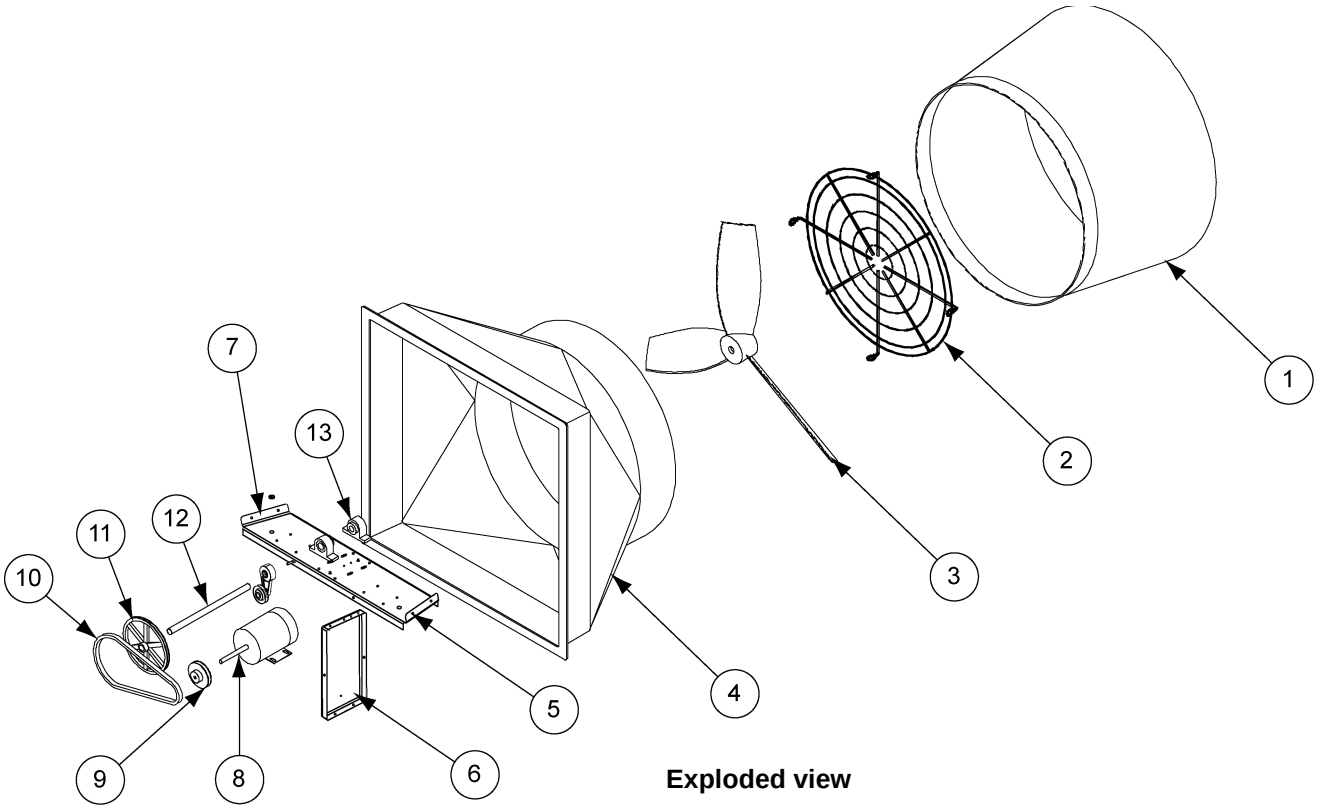


Figure 9D

Ref #	Description
F	Eyelets used to Mount Guard in Fiberglass Applications
G	Eyelets used to Mount Guard in Galvanized Applications

10. Parts List



Exploded view

Ref #	Part #		Description
	APPB-36C	APPB-50C	
1	12-0093	12-0094	Cone (Optional) *
2	11-0203-WH	11-0325 (Cone) / 11-0204-WH (No Cone)	Grill *
3	13-0062 / (HP) 13-0223	13-0044	Propellar
4	12-0091	12-0092	Housing *
5	11-0464	11-0208	Bearing Plate
6	11-0465	11-0209	Motor Mount Leg
7	91-0057	91-0057	Tensioner Arm
8	(1Ø) 15-0032 / (3Ø) 15-0086F / (HP) 15-0212	(1Ø) 15-0029 / (3Ø) 15-0084	Motor
9	16-0016 / (HP) 1011-2638	16-0016	Motor Sheave
10	16-0091	16-0012	Belt
11	16-0014	16-0099	Driven Pulley
12	(CR) 16-0083 / (SS) 16-0004 / (HP) 12-0477	(CR) 16-0083 / (SS) 16-0004	Shaft
13	1016-0100	1016-0100	Bearing
N/S	PS-42C	PS-54C	PVC Shutter *
N/S	HD42	HD54-F	Optional Aluminum Shutter

* For black fans add -BLK suffix after the housing, cone, grill and PVC shutter part numbers.

GSI Group, LLC Limited Warranty

The GSI Group, LLC ("GSI") warrants products which it manufactures to be free of defects in materials and workmanship under normal usage and conditions for a period of 12 months after sale to the original end-user or if a foreign sale, 14 months from arrival at port of discharge, whichever is earlier. The end-user's sole remedy (and GSI's only obligation) is to repair or replace, at GSI's option and expense, products that in GSI's judgment, contain a material defect in materials or workmanship. Expenses incurred by or on behalf of the end-user without prior written authorization from the GSI Warranty Group shall be the sole responsibility of the end-user.

Warranty Extensions:

The Limited Warranty period is extended for the following products:

	Product	Warranty Period
AP Fans and Flooring	Performer Series Direct Drive Fan Motor	3 Years
	All Fiberglass Housings	Lifetime
	All Fiberglass Propellers	Lifetime
AP and Cumberland	Flex-Flo/Pan Feeding System Motors	2 Years
Cumberland Feeding/Watering Systems	Feeder System Pan Assemblies	5 Years **
	Feed Tubes (1-3/4" and 2.00")	10 Years *
	Centerless Augers	10 Years *
	Watering Nipples	10 Years *
Grain Systems	Grain Bin Structural Design	5 Years
Grain Systems Farm Fans Zimmerman	Portable and Tower Dryers	2 Years
	Portable and Tower Dryer Frames and Internal Infrastructure †	5 Years

* Warranty prorated from list price:
  0 to 3 years - no cost to end-user
  3 to 5 years - end-user pays 25%
  5 to 7 years - end-user pays 50%
  7 to 10 years - end-user pays 75%

** Warranty prorated from list price:
  0 to 3 years - no cost to end-user
  3 to 5 years - end-user pays 50%

† Motors, burner components and moving parts not included. Portable dryer screens included. Tower dryer screens not included.

GSI further warrants that the portable and tower dryer frame and basket, excluding all auger and auger drive components, shall be free from defects in materials for a period of time beginning on the twelfth (12^{th}) month from the date of purchase and continuing until the sixtieth (60^{th}) month from the date of purchase (extended warranty period). During the extended warranty period, GSI will replace the frame or basket components that prove to be defective under normal conditions of use without charge, excluding the labor, transportation, and/or shipping costs incurred in the performance of this extended warranty.

Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH ABOVE. SPECIFICALLY, GSI MAKES NO FURTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (I) PRODUCT MANUFACTURED OR SOLD BY GSI OR (II) ANY ADVICE, INSTRUCTION, RECOMMENDATION OR SUGGESTION PROVIDED BY AN AGENT, REPRESENTATIVE OR EMPLOYEE OF GSI REGARDING OR RELATED TO THE CONFIGURATION, INSTALLATION, LAYOUT, SUITABILITY FOR A PARTICULAR PURPOSE, OR DESIGN OF SUCH PRODUCTS.

GSI shall not be liable for any direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. The sole and exclusive remedy is set forth in the Limited Warranty, which shall not exceed the amount paid for the product purchased. This warranty is not transferable and applies only to the original end-user. GSI shall have no obligation or responsibility for any representations or warranties made by or on behalf of any dealer, agent or distributor.

GSI assumes no responsibility for claims resulting from construction defects or unauthorized modifications to products which it manufactured. Modifications to products not specifically delineated in the manual accompanying the equipment at initial sale will void the Limited Warranty.

This Limited Warranty shall not extend to products or parts which have been damaged by negligent use, misuse, alteration, accident or which have been improperly/inadequately maintained. This Limited Warranty extends solely to products manufactured by GSI.

Prior to installation, the end-user has the responsibility to comply with federal, state and local codes which apply to the location and installation of products manufactured or sold by GSI.

9101239_1_CR_rev8.DOC (revised January 2014)

This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

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